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09/389,941	09/03/1999	THOMAS W. MEYER		6070

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81 NORTH STATE STREET
CONCORD, NH 03301

EXAMINER
LERNER, MARTIN

ART UNIT	PAPER NUMBER
2654	11

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/389,941	MEYER ET AL.	
	Examiner	Art Unit	
	Martin Lerner	2654	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *13 December 2001* .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *3 to 20, 22 to 36* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *3 to 20 and 22 to 36* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Objection to Amendment

The Amendment fails to comply with 37 CFR 1.121(c). This rule was revised on 07 December 2000, and was effective 05 February 2001. Amendment B filed 13 December 2001 and the Responses to the Notices of Non-Compliance remain non-compliant with the new rule. The new rule requires a separate clean copy and a marked-up copy of all amended claims. Standard practice requires claim amendments to be indicated by underlining new portions and bracketing deleted portions. Handwritten claim mark-ups were never acceptable. A licensed patent attorney is presumed to be familiar with the rules of practice, including any new rules. Applicants' continued disregard of these rules could lead to abandonment of this application, as the replies fail to demonstrate a *bona fide* attempt to comply.

Claim Objections

The numbering of claims is not in accordance with 37 CFR 1.126 which requires the original numbering of the claims to be preserved throughout the prosecution. When claims are canceled, the remaining claims must not be renumbered. When new claims are presented, they must be numbered consecutively beginning with the number next following the highest numbered claims previously presented (whether entered or not).

Misnumbered claims 31 to 33 are been renumbered as claims 34 to 36.

Apparently, Applicants have failed to take into account claims 31 to 33, which were added by Preliminary Amendment A filed 10 January 2000.

Also, claim 21 should be renumbered as claim 27 because Page 6 of Applicants' Remarks indicate claim 21 is cancelled with claims 22 to 26 rewritten to depend from claim 27.

Drawings

The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include reference sign(s). It is conventional for drawings to contain reference numerals. However, the drawings as submitted do not contain any reference numerals. Correction is required.

Specification

The disclosure is objected to because it contains embedded hyperlinks and/or other forms of browser-executable code. Applicants are required to delete the embedded hyperlinks and/or other forms of browser-executable code. See MPEP § 608.01. Embedded hyperlinks are found: On page 2, third line from the bottom; on page 3, line 3; and in several places on page 20.

On page 3, line 6, the Serial Number of the U.S. Patent Application should be inserted as – 09/389,942 filed 03 September 1999 --.

On page 20, line 5, "me" should be –the--.

Appropriate correction is required.

Information Disclosure Statement

The Information Disclosure Statement filed 17 September 1999 fails to comply with 37 CFR 1.98(a)(2), which requires a legible copy of each U.S. and foreign patent.

The Specification cites numerous prior art publications to which attention is directed in this IDS (Paper No. 2), but which are not readily available and may be relevant to examination of the application. Applicants are requested to supply copies of any relevant prior art references which are cited in the Specification and the IDS (Paper No. 2).

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

Claims 31 to 33 are rejected under 35 U.S.C. 102(e) as being anticipated by *Chen et al. ('347)*.

Regarding independent claim 31, *Chen et al. ('347)* discloses a method for embedding watermark signals into a digital media file, comprising:

"encoding the compressed digital data stream as a set of coefficient representations of said information" – host signal 101 may be pre-processed in any of a

variety of ways, such as being transformed, encoded, encrypted, smoothed, or interleaved; a process commonly known as discrete cosine transformation may have been applied to a host signal that is an image; other examples of transformations are Fourier, Fourier-Mellin, or Radon, transforms; JPEG or MPEG compression; wavelet transformation; or lapped orthogonal transformation (column 16, line 62 to column 17, line 50: Figure 1); implicitly, a discrete cosine (or other) transformation produces "a set of coefficient representations" of an image, and JPEG or MPEG compression encodes an image as a "compressed digital media file";

"embedding portions of the supplemental digital data at selected coefficients to produce a stream containing such embedded data for enabling user decoding to present both said information and the embedded supplemental data" – information embedder 201 embeds the watermark signal 102 ("supplemental digital data") in host signal 101 (column 16, line 62 to column 17, line 50: Figures 1 and 2); host signal 101 may be an audio signal 360 which is played back by receiver 125, and watermark signal 102 is reconstructed by information extracting computer system 110B (column 16, lines 22 to 41: Figure 1: 106 and Figure 2); in a Low-Bit Modulation Technique, a watermark is embedded by changing the low-bit modulation (LBM) quantization value; only quantization values at designated quantization intervals ("selected coefficients") are changed (column 29, line 31 to column 30, line 32: Figure 5B).

Regarding independent claim 32, *Chen et al. ('347)* discloses a system and method for embedding watermark signals into a digital media file, comprising:

"transforming the stream into encoded sets of frequency-domain coefficient representations of said information and compressing the same" – host signal 101 may be pre-processed in any of a variety of ways, such as being transformed, encoded, encrypted, smoothed, or interleaved; a process commonly known as discrete cosine transformation may have been applied to a host signal that is an image; other examples of transformations are Fourier, Fourier-Mellin, or Radon, transforms; JPEG or MPEG compression; wavelet transformation; or lapped orthogonal transformation (column 16, line 62 to column 17, line 50: Figure 1); implicitly, a discrete cosine (or other) transformation produces "a set of frequency-domain coefficient representations" of an image, and JPEG or MPEG compression compresses the file;

"selecting predetermined coefficient sets" – in a Low-Bit Modulation Technique, a watermark is embedded by changing the low-bit modulation (LBM) quantization value; only quantization values at designated quantization intervals ("selected coefficients") are changed (column 29, line 31 to column 30, line 32: Figure 5B).

"embedding bits of the supplemental digital data at selected coefficients to produce a supplemental data file containing such embedded data for enabling user decoding to present both the said information and the embedded supplemental data" -- information embedder 201 embeds the watermark signal 102 ("supplemental digital data") in host signal 101 (column 16, line 62 to column 17, line 50: Figures 1 and 2); host signal 101 may be an audio signal 360 which is played back by receiver 125, and watermark signal 102 is reconstructed ("played back") by information extracting computer system 110B (column 16, lines 22 to 41: Figure 1: 106 and Figure 2).

Regarding claim 33, *Chen et al. ('347)* discloses a Low-Bit Modulation Technique, where a watermark is embedded by changing the low-bit modulation (LBM) quantization value; only quantization values at designated quantization intervals ("selected coefficients") are changed (column 29, line 31 to column 30, line 32: Figure 5B); typically, quantization values 520 are regularly and evenly spaced by a "step size" of distance Δ/2 apart ("regular intervals") (column 29, lines 6 to 30: Figure 5A).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 3 to 17, 19, 20, 22 to 30 and 34 to 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Chen et al. ('347)* in view of *Sandford, II et al.*

Concerning independent claims 7, 27 and 34, *Chen et al. ('347)* discloses a method for embedding watermark signals into a digital media file, comprising:

"encoding the compressed digital media file as a set of coefficient representations of the pre-prepared media file information" – host signal 101 may be pre-processed in any of a variety of ways, such as being transformed, encoded, encrypted, smoothed, or interleaved; a process commonly known as discrete cosine transformation may have been applied to a host signal that is an image; other examples

of transformations are Fourier, Fourier-Mellin, or Radon, transforms; JPEG or MPEG compression; wavelet transformation; or lapped orthogonal transformation (column 16, line 62 to column 17, line 50: Figure 1); implicitly, a discrete cosine (or other) transformation produces "a set of coefficient representations" of an image, and JPEG or MPEG compression encodes an image as a "compressed digital media file";

"embedding portions of the supplemental digital data at selected coefficients to produce a media file stream containing such embedded data for enabling user decoding and playback of both the pre-prepared media file information and the embedded supplemental data" – information embedder 201 embeds the watermark signal 102 ("supplemental digital data") in host signal 101 (column 16, line 62 to column 17, line 50: Figures 1 and 2); host signal 101 may be an audio signal 360 which is played back by receiver 125, and watermark signal 102 is reconstructed ("played back") by information extracting computer system 110B (column 16, lines 22 to 41: Figure 1: 106 and Figure 2); in a Low-Bit Modulation Technique, a watermark is embedded by changing the low-bit modulation (LBM) quantization value; only quantization values at designated quantization intervals ("selected coefficients") are changed (column 29, line 31 to column 30, line 32: Figure 5B).

Concerning claims 7, 27 and 34, *Chen et al. ('347)* suggests that the watermark signal contains parity bits, or other error correction bits (column 27, line 56), and discloses an embedding generator that operates on "groups of co-processed components" (column 9, lines 32 to 43; column 47, line 66 to column 48, line 35). *Chen et al. ('347)* does not expressly disclose "wherein the further encoder means embeds

single bits of data by computing the parity of such least-significant bits of a group of said coefficients." However, *Sandford, II et al.* teaches a related method of compression embedding auxiliary information into a digital representation of host data, and suggests a technique by Upham to modify or manipulate parity of the quantizer output to add information. (Column 3, Lines 26 to 43) It would have been obvious to utilize the parity modifying technique cited by *Sandford, II et al.* in the similar watermarking method of *Chen et al. ('347)* to encode parity in groups of coefficients because it is suggested that modification of quantizer parity can be accomplished without disturbing the statistical properties of the signal. (Column 14, Lines 22 to 31)

Concerning claim 3, *Chen et al. ('347)* discloses a process commonly known as discrete cosine transformation may have been applied to a host signal that is an image; other examples of transformations are Fourier, Fourier-Mellin, or Radon, transforms; JPEG or MPEG compression; wavelet transformation; or lapped orthogonal transformation (column 16, line 62 to column 17, line 50: Figure 1).

Concerning claims 4 to 5 and 24 to 25, *Chen et al. ('347)* discloses a Low-Bit Modulation Technique, where a watermark is embedded by changing the low-bit modulation (LBM) quantization value; only quantization values at designated quantization intervals ("selected coefficients") are changed (column 29, line 31 to column 30, line 32: Figure 5B); typically, quantization values 520 are regularly and evenly spaced by a "step size" of distance Δ/2 apart ("regular intervals") (column 29, lines 6 to 30: Figure 5A).

Concerning claims 6 and 26, *Chen et al. ('347)* discloses a discrete cosine (or other) transformation, which implicitly produces frequency-domain coefficients.

Concerning claims 8 and 28, *Chen et al. ('347)* discloses a Low-Bit Modulation Technique, where a watermark is embedded by changing the low-bit modulation (LBM) ("least significant bit") quantization value; only quantization values at designated quantization intervals ("selected coefficients") are changed (column 29, line 31 to column 30, line 32: Figure 5B).

Concerning claims 9 and 29, *Chen et al. ('347)* discloses that dithered quantization values to which information embedder 201 changes selected values of the host signal are those that are closest to the host-signal values, thereby satisfying one or more distortion criteria ("produce minimal effects in the perception")(column 12, lines 15 to 19); also, *Sandford, II et al.* suggests that modification of quantizer parity can be accomplished without disturbing the statistical properties of the signal (column 14, lines 22 to 31).

Concerning claims 10 and 30, *Chen et al. ('347)* implies that embedding computer system 110A and extracting computer system 110B are identical to ensure that the embedding and extracting processes are reversible ("backward compatibility")(column 13, line 40 to column 14, line 2: Figure 1).

Concerning claim 11, *Chen et al. ('347)* discloses that digital watermarking is a steganographic process (column 1, lines 28 to 33); digital audio signals implicitly produce a "bit stream"; in some embodiments, the dithered quantization values to which information embedder 201 changes selected values of the host signal are those that are

closest to the host-signal values, thereby satisfying one or more distortion criteria ("produce minimal effects in the perception")(column 12, lines 15 to 19).

Concerning claim 12, *Chen et al. ('347)* discloses a Low-Bit Modulation Technique, where a watermark is embedded by changing the low-bit modulation (LBM) ("least significant bit") quantization value; only quantization values at designated quantization intervals ("selected coefficients") are changed (column 29, line 31 to column 30, line 32: Figure 5B).

Concerning claim 13, *Chen et al. ('347)* discloses a number of embodiments for digital watermarking in Figures 3B to 3D; in Figure 3B, a watermark signal 102B is first applied to only part of an audio signal 360B2, and then watermark signal 102B is embedded in host signal 101B by information embedder 201; similarly, in Figure 3D, a watermark signal 102D is first applied to supplemental signal 362D, and then watermark signal 102D is embedded in host signal 101D by information embedder 201 (column 18, line 15 to column 22, line 60: Figures 3B to 3D).

Concerning claim 14, *Chen et al. ('347)* discloses that digital watermarking is a steganographic process (column 1, lines 28 to 33); digital audio signals implicitly produce a "bit stream"; in a Low-Bit Modulation Technique, a watermark is embedded by changing the low-bit modulation (LBM) ("least significant bit") quantization value; a discrete cosine (or other) transformation implicitly produces "a range of frequencies."

Concerning claims 15 to 17, 19 to 20, 22 to 23, *Chen et al. ('347)* discloses a process commonly known as discrete cosine transformation may have been applied to a host signal that is an image; other examples of transformations are Fourier, Fourier-

Mellin, or Radon, transforms; JPEG or MPEG compression; wavelet transformation; or lapped orthogonal transformation (column 16, line 62 to column 17, line 50: Figure 1); the signal may include video, image, audio, x-ray or MRI (column 10, lines 54 to 65); operation of a discrete cosine transformation on an x-ray or MRI signal produces "volumetric data that is compressed using a 3D transformation".

Concerning claim 35, *Chen et al. ('347)* discloses a point coder 330 that operates on "groups of co-processed coefficients" (column 9, lines 32 to 43; column 47, line 66 to column 48, line 35: Figure 8B); implicitly, parity is calculated by adding a series of digits and determining whether the sum is odd or even; *Chen et al. ('347)* discloses groups of co-processed coefficients, and it is conventional for a group of audio coefficients to be grouped together in a vector; thus, *Chen et al. ('347)* must calculate the parity by adding together all of the digits in a group of coefficients comprising this vector.

Concerning claim 36, *Chen et al. ('347)* discloses that the host signal may be a media file such as an image, projected media, print media or graphics (column 10, lines 5 to 9; column 10, lines 54 to 63); furthermore, *Chen et al. ('347)* discloses an embodiment in Figure 3D, where the watermark signal 102D may be designated as a supplemental signal and the same signal 362D that was embedded as a watermark signal by conventional embedder 365D is illustratively employed as a watermark signal with respect to the operation of embedder 201 (column 22, lines 23 to 31: Figure 3D); thus, *Chen et al. ('347)* suggests that the supplemental signal 362D and the watermark signal 102D can be reversed so that the watermark signal is embedded prior to the supplemental signal.

Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over *Chen et al. ('347)* in view of *Sandford, II et al.* as applied to claims 7, 14 and 15 above, and further in view of *Qi et al.*

Chen et al. ('347) omits spline data with Bezier curves. However, *Qi et al.* provides evidence that Bezier splines have great potential use in computer-aided mammogram diagnosis. (See Abstract) It would have been obvious to one of ordinary skill in the art to apply Bezier splines to the x-ray or MRI signal of *Chen et al. ('347)* (column 10, lines 54 to 65) because *Qi et al.* teaches that Bezier splines have great potential use in computer-aided mammogram diagnosis.

Response to Arguments

Applicants' arguments filed 13 December 2001 have been fully considered but they are not persuasive.

Regarding the anticipation by *Chen et al. ('347)* under 35 U.S.C. § 102(e), Applicants maintain that the invention does not use watermarking. Applicants also state that their invention is capable of embedding entire computer programs, multimedia annotations, or lengthy supplemental communications at bit rates of more than 3000 bits per second, whereas the prior art is capable of embedding at relatively low bit rates. This position is traversed.

Claims 31 to 33 remain in the application, and are anticipated by *Chen et al. ('347)* under 35 U.S.C. § 102(e). The claims do not specify any particular type of

information to be embedded or the relative size thereof. Nor does the language of the claims recite any specific limitations with respect to the number of bits per second. *Chen et al. ('347)* discloses embedding watermarks and supplemental information. (Figures 3D to 3G) Thus, *Chen et al. ('347)* meets the limitations of claims 31 to 33 as being anticipated.

Regarding the obviousness of *Chen et al. ('347)* in view of *Sandford, II et al.* under 35 U.S.C. § 103(a), Applicants maintain that the combination does not suggest "parity of the least significant bits of a group of said coefficients." This position is traversed.

The combination of *Chen et al. ('347)* and *Sandford, II* renders obvious independent claims 7, 27 and 34 under 35 U.S.C. § 103(a) for the following reasons. Firstly, *Chen et al. ('347)* discloses a Low-Bit Modulation Technique, where a watermark or supplemental information is embedded by changing the low-bit modulation (LBM) quantization value (column 29, line 31 to column 30, line 32: Figure 5B). Secondly, *Chen et al. ('347)* suggests that the watermark signal may contain parity bits (column 27, line 56). Those having ordinary skill in the art of error correction know that parity is determined by adding together a group of bits to determine an error condition in the group of data bits transmitted. Thirdly, *Chen et al.* discloses an embedding generator that operates on "groups of co-processed components" (column 9, lines 32 to 43; column 47, line 66 to column 48, line 35). Those having ordinary skill in art of multimedia encoding know that audio and image data is transmitted in the form of vectors comprising a plurality of coefficients. A vector is a group of coefficients that are

transmitted together as a representation of the source data. Thus, *Chen et al.* implicitly applies both the low-bit modulation of quantization values and parity to groups of co-processed coefficients.

The only element omitted by *Chen et al.* is embedding the watermark or supplemental information with the parity on only the least significant bits in the low-bit modulation (LBM) technique of *Chen et al.* However, *Sandford, II et al.* teaches a related method of compression embedding auxiliary information into a digital representation of host data, and suggests a technique by Upham to modify or manipulate parity of the quantizer output to add information. (Column 3, Lines 26 to 43) Thus, given that *Chen et al.* computes the parity on groups of co-processed components and embeds supplemental information by low-bit modulation, it would have been obvious to one of ordinary skill in the art to apply the method of manipulating parity quantization to add information as suggested by *Sandford, II et al.*

In short, because the coefficients are already grouped together into vectors according to the standard method of encoding audio and images by Fourier components, it would naturally follow that the digits of all of the coefficients in the group comprising a vector would be added together to compute the parity.

Therefore, the rejections of claims 31 to 33 under 35 U.S.C. 102(e) as being anticipated by *Chen et al. ('347)*, of claims 3 to 17, 19, 20, 22 to 30 and 34 to 36 under 35 U.S.C. 103(a) as being unpatentable over *Chen et al. ('347)* in view of *Sandford, II et al.*, and of claim 18 under 35 U.S.C. 103(a) as being unpatentable over *Chen et al. ('347)* in view of *Sandford, II et al.*, and further in view of *Qi et al.*, are proper.

Conclusion

The prior art made of record and not relied upon is considered pertinent to Applicants' disclosure.

Chen et al. ('192), Zhang et al., Levine, Adler et al. and Moskowitz et al. disclose related art.

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Martin Lerner whose telephone number is (703) 308-9064. The examiner can normally be reached on 8:30 AM to 6:00 PM Monday to Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Marsha Banks-Harold can be reached on (703) 305-4379. The fax phone

numbers for the organization where this application or proceeding is assigned are (703) 872-9314 for regular communications and (703) 872-9314 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-4700.

MARSHA D. BANKS-HAROLD
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600

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May 6, 2002